EUB

# Well Drilling and Completion Data Filing Requirements

## May 2001 (revised to June 2004)

## Operations Covered:

- Drilling a New Well
- Re-entering an Existing Well
- Initial Completion of a New Well
- Completion of a New Zone
- Performing a Workover
- Surface Abandonment of a Well
- Abandoning a Zone in a Well

**GUIDE RENAMED AS A DIRECTIVE**

As announced in *Bulletin 2004-02: Streamlining EUB Documents on Regulatory Requirements*, the Alberta Energy and Utilities Board (EUB) will issue only "directives," discontinuing interim directives, informational letters, and guides. Directives set out new or amended EUB requirements or processes to be implemented and followed by licensees, permittees, and other approval holders under the jurisdiction of the EUB.

As part of this initiative, this document has been renamed as a directive. However, no other changes have been made. Therefore, the document text continues to have references to "guides." These references should be read as referring to the directive of the same number. When this directive is amended, these references will be changed to reflect their renaming as directives.

**Alberta Energy and Utilities Board**

**ALBERTA ENERGY AND UTILITIES BOARD**
Guide 59: Well Drilling and Completion Data Filing Requirements

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## How to Use This Guide

### Overview of the Guide

Section 12.010 of the Oil and Gas Conservation Regulations requires the licensee or a representative of the licensee to keep and file records and reports of daily operations on wells that are in the process of being drilled, completed, reconditioned, or abandoned in accordance with the current edition of this guide, *Guide 59: Well Drilling and Completion Data Filing Requirements*.

- A copy of these records must be submitted directly to the Alberta Energy and Utilities Board (EUB) Core Research Centre (CRC).
- The electronic drilling and completion summary data of the operations performed must be submitted to the Well Data Services (WDS) section of the EUB.

The EUB collects the data to maintain an accurate record of each well drilled in the province both for its own use and for the use of the oil and gas industry in performing drilling and servicing operations in a safe and efficient manner.

The EUB has developed this guide to assist industry in filing operations information in a timely manner and to ensure data integrity. The guide describes the requirements for submitting electronic drilling and completion data.

### What's New in This Edition

This October 2002 revision of *Guide 59* incorporates modifications resulting from the implementation of the Petroleum Registry of Alberta.

### Electronic Submission

The Web-based system for filing well drilling and completion data provides for interactive submission either by entering the data into the electronic form provided on the EUB's Web site or by uploading a file containing the data in the prescribed format. (See the Digital Data Submission page on the EUB Web site at <www.eub.gov.ab.ca> for more detailed information.) This system only addresses the submission of summary data. You must also continue to submit detailed reports of daily drilling and completion operations in paper form, as explained on page 2.

Electronically submitted data are edited interactively; a submission is not accepted until all edits are satisfied. These edits reference the EUB database to ensure that data submitted are consistent with existing data for the well(s) in question. Errors in the submission are identified by messages specific to the error in question.

Once a submission is accepted, an acknowledgement page is displayed. This page provides a link to a report listing all data submitted. You may choose to print this acknowledgement for record-keeping purposes. Please be aware that this is the only time you will be able to print a report of what you have submitted. You may also request that this acknowledgement be e-mailed to you.

#### *File Test*

A file test facility is available on the EUB Web site for those who wish to test their file structures. The same edits are performed on test files as are performed on a live submission, with the exception of referential edits against the EUB database. Submission file specifications and data edits are also available on the EUB Web site.

#### *System Access*

The system is accessed via the Digital Data Submission page on the EUB Web site. A Web browser is required: either Netscape 3.0 or higher or Microsoft Internet Explorer 4.0 or higher. SSL technology is used to encrypt data in transmission. Ensure that your browser supports the level of encryption, up to 128 bit, that you require.

Access to the system is by Login ID and password. Beginning in May 2001, Company Administrator Login IDs and passwords will be mailed to all companies that have at least one active well in Alberta.

With a Company Administrator Login ID, you can

- create and delete User accounts for your company if it has more than one person submitting data;
- reset the password on User accounts;
- unlock User accounts if the user attempts five incorrect passwords;
- change the password on the Company Administrator account; and
- Login IDs may be distributed to trusted third parties for the purpose of submitting data on behalf of the licensee.

If Company Administrators do not receive a Login ID and password or have additional questions or concerns, please contact Linda Trieu at (403) 297-5802 or send an e-mail to <eub.ddsadministrator@eub.gov.ab.ca>.

### General Reporting Requirements

When a well is in the process of being drilled, completed, reconditioned, or abandoned, the licensee or its representative must keep at the well or the field office a daily record of operations performed.

The daily report must set out complete data on all operations carried on during the day for drilling, fishing, shooting, perforating, acidizing, fracturing, surveying, testing, and abandonment operations. The information that the daily report must contain is outlined in Appendix 3 of this guide. As well, any suspension of operations must be noted on the current daily report.

Within 30 days from the conclusion of the operation or prior to a well status change required for the volumetric submission to the Petroleum Registry of Alberta, the licensee or its representative must submit the electronic drilling and/or completion data to the EUB. Within 7 days of the acceptance of the electronic data by Well Data Services, one hard-copy report of the daily records must be submitted to the EUB Core Research Centre. As well, a duplicate copy of the records must be retained as a part of the well record.

**Electronic drilling and/or completion data must be filed with the EUB prior to filing a change of well status through the Petroleum Registry of Alberta.**

The EUB may, if deemed necessary, require the licensee or its representative to file additional information for audit purposes or for clarification of the electronically submitted drilling and completion data (i.e., Well Schematics).

### Industry Compliance

The EUB believes that compliance in meeting or exceeding regulations and standards is the responsibility of the energy industry. The EUB expects all industry participants to understand its requirements and have an infrastructure in place to ensure compliance.

Enforcement ladders and noncompliance consequences will be developed for escalating occurrences of noncompliance once industry has had a chance to use and become familiar with the electronic submission process. It is the EUB's intention to fashion the ladder similar to the EUB's generic enforcement ladder. Industry consultation will occur prior to the implementation of any enforcement ladder or noncompliance consequences.

However, EUB staff will be developing and conducting an audit process prior to the issuance of enforcement ladders and noncompliance consequences. Drilling and completion data that have been submitted electronically will be randomly audited and companies will be notified of errors or omissions in their reporting.

### Submitting Hard-copy Reports of Daily Drilling and Completion Operations

When an electronic submission has been accepted, the acknowledgement page presents a link to a printable "cover sheet" containing unique well and submission identification information. You must print this cover sheet, attach it to the paper reports of daily operations from which the summary data were derived, and

send this package directly to the EUB Core Research Centre. These reports must be received by the Core Research Centre no more than 7 days after the acceptance of the electronically submitted summary information.

Do not attach other types of well information to the daily operations reports (e.g., directional surveys, logs).

Send the hard-copy reports to

Alberta Energy and Utilities Board
Core Research Centre
3545 Research Way NW
Calgary AB T2L 1Y7

### What This Guide Contains

The main section, Data Submission Requirements, presents a step-by-step process that guides you through the entering of data elements.

Appendices 1-3 contain applicable policy and technical information, with detailed explanations for specific information/data elements

### Guide Help Line

This guide should answer the majority of your questions, but there are unique situations that may not be covered in this guide. If after careful study, you have a specific question not covered, contact the help line at (403) 297-8696 or by e-mail at <EUB.WellDataServices@gov.ab.ca>.

## Data Submission Requirements

### Account Details

*These data are required to be filled in only the first time an account is used. They will remain for all future submissions, unless a change is required.*

**Contact Name** — Enter the name of the person responsible for preparing this submission.

**Contact Phone/Fax/E-mail** — Enter the business telephone number, facsimile (fax) number (both with area codes), and e-mail address of the contact person.

**Acknowledge Submissions by E-mail** — Enter yes if you would like to have acknowledgement of your submission automatically e-mailed to you, no if not.

### Licence Operation

*These data are required to be filled in only once per submission.*

**Licence Number** — Enter the seven-digit licence number of the well, including leading zeroes. Enter the licence prefix or suffix if applicable.

**Operation Start Date** — Enter the date the rig moves on site. If the operation uses more than one rig, enter the date the first rig moves on site.

**Operation End Date** — Enter the date the rig moves off site. If the operation uses more than one rig, enter the date the last rig leaves the site.

**Submitter Reference** — Enter the reference number chosen by the submitter for your in-house record keeping.

### Well Operation

*Check one or more boxes, as appropriate.*

**Drilling Operation** — Check this box if you are reporting initial drilling or re-entry operations (that require a new event sequence).

You must submit this information to the EUB within 30 calendar days of the finish date of the drilling operation to the final depth of the well being reported. If a drilling operation is suspended for any reason, do not submit the data until the final drilling operation is complete. Advise Well Data Services of suspended drilling operations at (403) 297-8696 or <EUB.WellDataServices @gov.ab.ca>.

You must supply drilling operation data for each leg (event) of a multileg well.

If the drilling operation results in more than nine event sequences, contact Well Data Services (403) 297-8696. The current EUB mainframe system can only accept nine event sequences. Until changes to the mainframe system are completed, you must choose which event sequences will be recorded. The others will be noted by Well Data Services and entered into the mainframe when it is able to accept more than nine event sequences.

An event sequence needs to be created in a multileg drilling situation when any one of the following occurs:

- the leg reaches horizontal (80 degrees or greater)
- any cores are cut on the leg
- any drillstem tests or logs are run on the leg
- the total measured depth of the leg is greater than any of the other legs in the well

**Deepening Operation**

Check this box if an existing well is being deepened. This is different from "drilling" in that no new formation is being penetrated and no new unique well identifier (UWI) is created (e.g., barefoot completion operation) where drilling was completed in a prior operation.

You must submit this information to the EUB within 30 calendar days of the finish date of the deepening operation being reported.

**Completion Operation**

Check this box if the operation being reported is the initial completion of a well, a workover/recompletion operation, a zone abandonment, or the setting or pulling of packing devices.

A completion operation submission must be made for each event (zone) of a well with the appropriate event sequence assigned (see Appendix 2).

You must submit this information to the EUB within 30 calendar days of the finish date of the operation being reported.

- Upon licensing a well, the first event (/0) is created. When completing a well, the first event is to be used for the initial set of perforations. This must include all perforations that are not segregated.

- Additional event sequences are required if the following occurs after the initial completion:
  - setting of a permanent packer with additional completions in a different zone
  - performing a production test on a different zone in the wellbore in order to report the test results to the correct zone

- Additional event sequences are not required if the well is commingled (without segregation) in the wellbore. Commingling requires the approval of the EUB's Resource Applications Group and must exist prior to completion of each zone.

- Event sequence codes are assigned chronologically. However, if multiple zones are completed in the same operation, the lower zone is deemed to be completed first.

- If a lower zone is completed at a later date, the lower zone carries the subsequent event sequence.

- A new event sequence is required when an existing well is deepened to a new zone and/or there are previous completions in a different zone on the well.

**Surface Abandonment Operation**

Check this box if the operation being reported is the surface abandonment of the well. Always report surface abandonment on the highest existing event sequence of the well.

You must submit this information to the EUB within 30 calendar days of the end of the surface abandonment operation.

## Drilling

**Drilling Contractor Code**

Enter the drilling contractor's assigned four-digit Business Associate (BA) code.

**Rig Number**

Enter the drilling rig number assigned to the contractor.

**Spud Date**

Enter the date on which drilling of the well begins.

Drilling to set conductor casing is not considered spud unless it is conducted by the drilling rig that continues to drill the remainder of the well.

Drilling surface hole and setting of surface casing by a surface hole rig constitutes spud of a well.

In cases of a newly licensed re-entry of a previously abandoned well for production or injection purposes, provide the date that the re-entry operations begin.

**Finished Drilling Date**

Enter the date on which total depth is reached.

**The finished drilling date includes the completion of any drilling operations conducted with a coiled tubing unit to reach the total depth.**

**Rig Release Date**

Enter the date on which **all** drilling operations are completed and the contractor is released from the well site.

**Kelly Bushing Elevation**

Enter the kelly bushing elevation (ground elevation plus height of the kelly bushing) in metres.

**Total Depth**

Enter the total depth in metres kelly bushing.

**Initial Status Code**

Enter the code of the initial status for the reported event sequence applicable at the end of the drilling operation (see Table 1).

If none of the five initial statuses seems applicable, enter the code for Drilled and Cased, and then submit change of well status data to the Petroleum Registry of Alberta, indicating the appropriate status.

**Table 1. Initial Status Codes**

| Value | Initial Status | Definition |
|---|---|---|
| 1 | Drilled and cased | A well that has been drilled and cased but not immediately put on production (standing). |
| 2 | Abandoned | A well that has been drilled and the downhole abandonment work completed. |
| 3 | Abandoned and whipstocked | A portion of a well that has been drilled and then abandoned and requires an event sequence to be created. A whipstocked leg is then drilled from the original wellbore. |
| 4 | Junked and abandoned | If a well is drilled to a total depth greater than 150 m, you must submit all drilling and abandonment information with a status of junked and abandoned to the EUB. If the rig is to be skidded and a new well spud, you must file an application for a new licence with the EUB Applications Branch (see *Guide 56: Energy Development Application Guide*).<br>If a well is drilled and abandoned due to drilling or mechanical problems at a total depth of 150 m or less, it is not considered to be a well. No information is required by the EUB for this drilling operation. If the rig is skidded and the well is respud, the same licence may be used. |
| 5 | Drain | More than one event (leg) in a multileg well is open to the same formation and is capable of production. The event that you consider to be the main contributor of production carries the producing status. The other contributing events carry a drain status.<br>In a re-entry situation, if one of the events has previously produced and has been assigned a defined pool, it remains as the producing event and the other events carry a drain status. |

## Deepening

**Finished Drilling Date**

Enter the date on which total depth of the deepening operation is reached.

**Total Depth**

Enter the total depth of the deepening operation in metres kelly bushing.

## Casing

*You must duplicate casing from the common portion of the wellbore for each event of a multileg well.*

*If an existing well is being re-entered, you must still show historical common casings on the new legs. However, casing date, grade, and density are optional.*

*If an open hole and/or uncemented liner exists after drilling operations have been completed, you must enter details in the completion record indicating the open hole and/or uncemented slotted liner interval.*

*A casing record is not required for uncemented tubing.*

**Casing Date**

Enter the dates in chronological order that the casings/liners were set.

**Casing Code**

Enter the code from Table 2 that corresponds to the type of casing being reported.

**Table 2. Casing Codes**

| Value | Casing Type |
|---|---|
| 1 | Conductor |
| 2 | Surface |
| 3 | Intermediate |
| 4 | Production |
| 5 | Liner |

**Casing Liner Outside Diameter**

Enter the outside diameter of each casing/liner in millimetres.

**Casing Grade Steel Process**

Enter the casing grade steel process of each casing/liner in alpha characters.

If multiple grades are run on one casing string, report the highest grade.

**Casing Grade Yield Strength**

Enter the casing grade yield strength of each casing/liner in numeric characters.

If multiple grades are run on one casing string, report the highest grade.

**Casing Density**

Enter the linear density (weight) of the casing/liner from Table 3 in kilograms per metre.

If multiple densities are run on one casing string, report the highest density.

**Shoe Set Depth**

Enter the setting depth of the casing/liner in metres kelly bushing.

**Liner Top Depth**

Enter the depth at which the liner is hung in metres kelly bushing.

**Table 3. Linear Density of Casings/Liners**

| Outside diameter (mm) | Casing densities (kg/m) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 38.1 | 2.4 | | | | | | | |
| 52.4 | 4.8 | | | | | | | |
| 60.3 | 6.0 | 6.8 | 8.6 | | | | | |
| 73.0 | 9.5 | 9.5 | 12.8 | | | | | |
| 88.9 | 11.5 | 13.7 | 15.2 | 18.9 | | | | |
| 101.6 | 14.1 | | | | | | | |
| 114.3 | 14.1 | 15.6 | 17.3 | 20.1 | | | | |
| 127.0 | 17.1 | 19.4 | 22.3 | 26.8 | | | | |
| 139.7 | 20.8 | 23.1 | 25.3 | 29.8 | 34.2 | | | |
| 168.3 | 29.8 | 35.7 | 41.7 | 47.6 | | | | |
| 177.8 | 25.3 | 29.8 | 34.2 | 38.7 | 43.2 | 47.6 | 52.1 | 56.6 |
| 193.7 | 35.7 | 39.3 | 44.2 | 50.2 | 59.0 | | | |
| 219.1 | 35.7 | 41.6 | 47.6 | 53.6 | 59.5 | 65.5 | 72.9 | |
| 244.5 | 48.1 | 53.6 | 59.5 | 64.7 | 69.9 | 79.6 | | |
| 273.0 | 48.7 | 60.3 | 67.7 | 75.9 | 82.6 | | | |
| 298.4 | 62.5 | 69.9 | 80.4 | 89.3 | | | | |
| 339.7 | 71.4 | 81.1 | 90.8 | 101.2 | 107.2 | | | |
| 406.4 | 96.7 | 111.6 | 125.0 | | | | | |
| 473.1 | 130.2 | | | | | | | |
| 508.0 | 139.9 | 158.5 | 197.9 | | | | | |

## Cementing

*If an existing well is being re-entered, historical cement details common to the new legs being drilled are optional.*

*Record cements in the order that they are pumped into the well. For each casing run, there may be several records of cementing details. You may add multiple cement records to a single casing record.*

**Cement Code**

Enter the code from Table 4 for the type of cement used. Do not record scavenger cements.

**Table 4. Cement Codes**

| Value | Cement Type |
|---|---|
| 01 | Class A |
| 03 | Class C |
| 04 | Class G |
| 06 | 1:1:2 |
| 07 | 1:1:4 |
| 30 | Thermal cements |
| 31 | Thixotropic cements |
| 36 | Foamed cement |
| 40 | Cap cement (capping foamed cement) |
| 42 | Lightweight cements |
| 90 | Tapered casing |
| 91 | Uncemented slotted liner |
| 92 | Uncemented casing |

**Cement Amount**

Enter the amount of cement used.

**Cement Unit Code**

Enter the code from Table 5 for the unit of measurement used for the cement.

**Table 5. Cement Unit Codes**

| Value | Cement Unit |
|---|---|
| 1 | Cubic metres |
| 2 | Tonnes |
| 3 | Sacks |
| 4 | Litres |

**Interval Top**

Enter either the estimated or actual base of the interval in the wellbore that is cemented or left uncemented in metres kelly bushing.

**Interval Base**

Enter either the estimated or actual base of the interval in the wellbore that is cemented or left uncemented in metres kelly bushing.

## Core

*If recording a sidewall core, enter a single depth at which each sidewall core was taken. Enter this in the "Interval Top" field.*

*Cores in oil sands areas are usually cut in 6 m runs for 80-90 m. Record the cored interval as one interval, indicating the top and base of the interval.*

**Core Number**

Enter the number of the cores cut in the chronological order that they are cut.

If additional cores are cut on a new leg (event), they must be renumbered beginning at 1.

**Sidewall**

Click **Yes** if coring method is sidewall.

Click **No** if method is other than sidewall.

**Interval Top**

Enter the top of the interval of the wellbore that was cut in metres kelly bushing.

**Interval Base**

Enter the base of the interval of the wellbore that was cut in metres kelly bushing.

## Drillstem Test

*If drillstem test details have already been submitted to the EUB through Well Test Capture, this drillstem test record is not required. An edit will inform you if you are trying to enter a drillstem test record for a test that the EUB has already received through Well Test Capture.*

**Test Number**

Enter the number of the test runs in chronological order. You must also report drillstem tests that are determined to be misrun.

If additional tests are run on a new leg (event), they must be renumbered beginning at 1.

**Test Type Code**

Enter the code from Table 6 for the type of test conducted.

**Table 6. Test Type Code**

| Value | Test Type |
|---|---|
| 1 | Bottomhole |
| 2 | Straddle |
| 7 | Closed chamber |

**Interval Top**

Enter the top of the interval of the section of the wellbore tested in metres kelly bushing.

**Interval Base**

Enter the base of the interval of the section of the wellbore tested in metres kelly bushing.

## Kickoff

*Do not record instances of natural deviation up to 5 degrees.*

*You must record kickoffs that occur in a common portion of a wellbore in a multileg well.*

**Kickoff Date** — Enter the dates that kickoff drilling began in chronological order.

**Kickoff Depth** — Enter the depth of kickoff in metres kelly bushing.

**Kickoff Reason Code** — Enter the code from Table 7 indicating the reason for kickoff.

**Table 7. Kickoff Reason Codes**

| Value | Reason |
|---|---|
| 1 | Deviate (5 - 79 degrees) |
| 2 | Sidetrack fish |
| 4 | Horizontal (80 degrees or greater) |

## Plug Back

*Only record plugs that are left in the well at the end of the operation.*

*Do not record cement plugs that are run in a leg of a well not considered a drilling event (e.g., a ghost hole). (See Appendix 1.)*

*You may use a 3 m high-density cement plug if the plug length is an operational issue. If the plug is less than 3 m, you must get preapproval from the EUB Operations Group.*

**Plug-Back Date** — Enter the dates that the plug was run in chronological order.

**Plug-Back Purpose Code** — Enter the code from Table 8 for the purpose of the cement operation.

**Table 8. Plug-Back Purpose Codes**

| Value | Plug-Back Purpose |
|---|---|
| 1 | Abandon |
| 3 | Plug back and case |
| 4 | Plug back and whipstock |
| 5 | Plug back and sidetrack (fish) |
| 6 | Plug back and straighten |
| 7 | Lost circulation plug (not drilled out) |

**Interval Top** — Enter the **top felt depth** or **drilled out depth** of the cement plug in the wellbore in metres kelly bushing. If the plug is not felt, enter the planned interval top.

**Interval Base** — Enter the base of the cement plug in metres kelly bushing.

**Cement Amount** — Enter the amount of cement used.

**Unit Code**

Enter the code from Table 9 for the unit of measurement used for the cement volume.

**Table 9. Cement Unit Codes**

| Value | Unit |
|---|---|
| 1 | Cubic metres |
| 2 | Tonnes |
| 3 | Sacks |
| 4 | Litres |
| 5 | Metres |

**Method Code**

Enter the code from Table 10 for the method by which the abandonment or plug back was performed.

**Table 10. Method Codes**

| Value | Method |
|---|---|
| 3 | Rerun plug |
| 51 | Cement plug |
| 53 | Packing device capped with cement |

**Log Tag Code**

Enter the code from Table 11 for the method by which the plug was felt.

**Table 11. Log Tag Codes**

| Value | Method |
|---|---|
| 1 | Log |
| 2 | Tag |
| 3 | Not felt |

## Well Incident

**Occurrence Type Code**

Enter the code from Table 12 that describes the occurrence you are reporting.

**Table 12. Occurrence Type Codes**

| Value | Occurrence |
|---|---|
| 10 | Kick |
| 20 | Blow |
| 30 | Blowout |
| 40 | Lost circulation |
| 50 | Water flow |

**Operation in Progress Code**

Enter the code from Table 13 for the operation in progress when the incident began.

**Table 13. Operation in Progress Codes**

| Value | Operation | Value | Operation |
|---|---|---|---|
| 1 | Drilling | 5 | Tripping |
| 2 | Circulating | 6 | Tripping out |
| 3 | Coring | 7 | Running casing |
| 4 | Logging | 8 | Testing |

**Occurrence Date**

Enter the date the incident began.

| | |
|---|---|
| **Occurrence Depth** | Enter the total depth the well was at when the incident began in metres kelly bushing. |
| **Occurrence Mud Density** | Enter the density of fluid in the wellbore when the incident began in kilograms per cubic metre.<br><br>If there was no fluid in the wellbore at the time of the incident, enter 0800.0 kilograms per cubic metre. |
| **Controlled Date** | Enter the date the incident was controlled. |
| **Controlled Depth** | Enter the total depth the well was at when the incident was controlled in metres kelly bushing. |
| **Controlled Mud Density** | Enter the density of the fluid in the wellbore when the incident was controlled in kilograms per cubic metre.<br><br>If a cement plug was used to control the incident, enter 2499. If casing was used, enter 2500. |
| **Lost Circulation Total Fluid** | If you are recording a lost circulation, enter an estimate of the volume of fluid lost during the incident in cubic metres.<br><br>If you cannot determine a volume, leave blank. |
| **Water Flow Average Influx** | If you are recording a water flow, enter the estimated average volume of fluid flowing into the wellbore in cubic metres per day.<br><br>If you cannot determine a volume, leave blank. |

**Completion**

| | |
|---|---|
| **Completion Date** | Enter the date of each operation performed in chronological order. |
| **Operation Type Code** | Enter the code from Table 14 for the type of operation performed. |

**Table 14. Operation Type Codes**

| Value | Operation | Interval Recorded | Notes |
|---|---|---|---|
| 2 | Perforation | Interval perforated | |
| 5 | Hydra jet perforation | Interval cut | Sand notching |
| 7 | Slotted liner | Shoe of previous casing to shoe of liner | |
| 8 | Open hole/barefoot completion | Shoe of previous casing to total depth | |
| 9 | Casing vent production | Vent flow interval | |
| 12 | Acid treatment | Completed interval treated | |
| 23 | Chemical squeeze | Completed interval treated | |
| 24 | Alcohol squeeze | Completed interval treated | |
| 41 | Fracture | Completed interval treated | |
| 51 | Cement plug | Interval of plug | |
| 52 | Cement squeeze (only record if successful) | Completed interval cemented | If a portion of open hole is sealed off with cement, cemented casing, or liner, use a cement squeeze to show the completed interval covered. |
| 53 | Packing device (cement retainer, bridge plug) capped with cement | Top of cement to top of packing device | |
| 54 | Casing patch | Completed interval covered by patch | Only record if it covers a completed interval. Do not record casing repair. |
| 55 | Packing device (cement retainer, bridge plug, whipstock packer) with no cement | Top of packing device to bottom of packing device | Only record if device is used to abandon a zone. Otherwise record in Packer data (next section). |
| 56 | Remedial casing cementing (only record if successful) | Completed interval cemented | Only record when cement is squeezed through perforations to get behind the casing to fix a casing leak or failure. Do not record if squeezed-through casing tears. |

**Interval Top**

Enter the top of the interval in metres kelly bushing.

**Interval Base**

Enter the base of the interval in metres kelly bushing.

**Shots per Metre**

If the well is perforated, enter the number of shots (perforations) made per metre.

**Cement Amount**

Enter the amount of cement used for cementing operations.

**Cement Unit Code**

Enter the code from Table 15 for the unit of measurement used for the cement amount.

**Table 15. Cement Unit Codes**

| Value | Units |
|---|---|
| 1 | Cubic metres |
| 2 | Tonnes |
| 3 | Sacks |
| 4 | Litres |
| 5 | Metres |

**Abandonment Code**

Enter the code from Table 16 for the purpose of the cementing operation. If the cementing operation was to suspend a zone, leave blank.

**Table 16. Abandonment Codes**

| Value | Abandonment |
|---|---|
| 1 | Abandon |
| 2 | Abandon zone |
| 4 | Plug back and whipstock |

**Log Tag Code**

Enter the code from Table 17 of the method by which the cement plug was felt.

**Table 17. Method Codes**

| Value | Method |
|---|---|
| 1 | Log |
| 2 | Tag |
| 3 | Not felt |

## Packer

*Packers must be recorded at the drilling event level—e.g., if a packer is set in the /0 producing event and the /2 producing event in the same operation, both packers must be recorded in the packer record on the /0 event (drillhole event).*

*Only report the packing devices that are set in the wellbore and remain at the end of the operation.*

*You must record the setting or pulling of any packing devices in the common wellbore of a multileg well on each drilling event sequence that shares the common wellbore.*

*Ensure that you record any previously set packing devices that are pulled, drilled out, or pushed downhole in this operation as pulled.*

*Do not report external casing packers.*

*Do not record anything in packer data that has also been recorded in the completion record (e.g., bridge plug capped with cement).*

*Do not report any historical packer data that may have occurred prior to any packer data the EUB already carries on its database. Send these data in as an amendment.*

**Packer Date**

Enter the dates that the device was **set** in the well in chronological order.

Do not enter a date for a **pull**.

**Packer Operation**

Click **Pulled** if a previously set device is removed from the well during this operation. (For file submission, enter code P.)

Click **Set** if a device is set during this operation and remains at the end of the operation. (For file submission, enter code S.)

If a packing device (cement retainer, bridge plug) capped with cement is drilled out, you must enter the perforations or open hole in the Completion record to again show them as reopened as of the date the packing device is drilled out.

**Packer Code**

Enter the code from Table 18 for the type of packing device.

**Table 18. Packer Codes**

| Value | Packing Device |
|---|---|
| 1 | Packer |
| 2 | Bridge plug or whipstock packer |
| 3 | Cement retainer |
| 4 | Through-tubing packer |
| 5 | Through-tubing bridge plug |

**Packer Depth**

Enter the depth the device is set in the well in metres kelly bushing.

## Surface Abandonment

**Surface Abandonment Date**

Enter the date the surface abandonment was completed.

**Surface Abandonment Type Code**

Enter the code for the type of surface abandonment used.

**Table 19. Surface Abandonment Type Codes**

| Value | Method |
|---|---|
| 5 | Open hole |
| 6 | Cased hole |

**Mineral Surface Lease Number**

Enter the mineral surface lease number for Crown surface lease only.

**Working Interest Indicator**

Click **Yes** if the licensee holds 100 per cent working interest in the well.

Click **No** if the licensee does not hold 100 per cent working interest in the well.

## Working Interest Participant

*You must fill this section in only if the licensee does not hold 100 per cent working interest in the well.*

**Participant Name**

Enter the working interest participant's name.

**Percentage Participation**

Enter the percentage of the participant's working interest.

## Amendment Requests

*If changes are required to be made to data that have been **previously submitted** to the EUB, you may submit an Amendment Request electronically in a free-form format. Well Data Services staff will manually apply these amendments to the EUB database.*

**Licence Number**

Enter the licence number of the unique well identifier (UWI) that you are amending.

**Details**

In the free-form section, enter the UWI affected by the amendment. Be sure to describe in detail the addition, deletion, or correction required. Describe the data before the amendment and what it should look like after the amendment.

# Appendix 1 Policy and Technical Issues Related to Well Drilling and Completion Data

## Drilling Operations

### Re-entry operations

An abandoned well licensed to another company is re-entered by a different company. An application for a well licence is required to be filed and approved by the Applications Branch (see *Guide 56: Energy Development Application Guide*) before the re-entry operations begin. If the abandoned well belongs to the same company that is re-entering, it has to apply for an approval to resume drilling.

- The status of the original well will be changed to "Abandoned and Re-entered" by the EUB's Well Data Services section after the electronic drilling data has been updated.
- A new well identifier will have been issued through the application for a new licence or approval process.
- Spud date is the date that re-entry operations start.
- Finished drill date is the date re-entry operations are completed.
- Rig release date is the date the contractor is released from the well site.
- Total depth should be the original total depth of the well, even if all of the abandonment plugs are not drilled out. If it is deepened during re-entry operations, it is the new deeper depth.
- Historical casings must be recorded, but date, grade, density, and cement details are not required.
- If cement plugs are drilled out and original perforations are exposed, the perforations must be recorded in the completion record as of the date the plug was drilled out.

### Resumption of drilling operations

An existing well, whether abandoned or not, is entered for the purpose of deepening, whipstocking, recompletion (abandoned well only), or horizontal recompletion.

The well licence must belong to the company performing the resume drilling operations. Prior approval must be obtained from the EUB Applications Branch (see *Guide 56: Energy Development Application Guide*) unless the resume drilling operations occur within six months of the spud and the

terminating formation and type of drilling operation (vertical, directional, or horizontal) are the same as originally licensed.

If a nonabandoned well is being re-entered and subsequently abandoned in order to whipstock, the following applies:

- The abandonment details must be electronically submitted for the event sequence being abandoned, and drilling details must be submitted for the new event sequence drilled.
- When this information is received, Well Data Services staff will change the status of the abandoned event sequence to "Abandoned and Whipstock."

If a nonabandoned well is being re-entered and the original wellbore is not abandoned, any additional legs that are drilled should be given an initial status of "drain."

In cases of open hole completions to the same formation,

- An additional event sequence is not required if this is the initial completion of the well or if you are drilling into the same terminating formation as the initial completion of the well.
- Electronically submit the new finished drill date and total depth in the deepening record and the new open hole interval in the completion record.

In cases of deepening to a new formation, electronically submit the drilling details and the new open hole interval for the new event sequence.

**Reabandonments**

If a cement plug in a previously abandoned well is drilled out and a new cement plug set, electronically submit the new plug details in the plug back record, with the method indicated as "rerun plug."

If a casing is run to control a vent flow, enter the casing details in the casing record.

If the well is perforated and remedial cementing done to control a vent flow, enter the details in the completion record.

The status and status date of the well do not change, and the drilled-out plug does not have to be indicated.

If the new abandonment plug has to be monitored, the status and status date of the well do not change.

**Ghost holes**

A ghost hole is an attempt to drill a whipstocked leg that

- does not reach 80°,

- does not have any logs, drillstem tests, or cores attributed to it, or
- does not have a total measured depth greater than any of the other legs on the well.

Ghost holes are not considered to be events and therefore do not require assigned event sequence numbers. Cement plug operations performed in a ghost hole or leg are not required to be reported to the EUB.

## Drilling Incidents

**Kicks**

A kick is any entry of fluid into a wellbore that is under control and can be circulated out.

**Blows**

A blow is the uncontrolled flow of wellbore fluids to the atmosphere. The flow can be shut in with the wellhead valve or blowout prevention equipment or it can be directed to the flare system if the well cannot be shut in indefinitely without exceeding maximum allowable casing pressure (MACP).

**Blowouts**

A blowout is the complete loss of control of the flow of fluids from a well to the atmosphere or the flow of fluids from one underground reservoir to another (an underground blowout). Wellbore fluids are venting uncontrolled at or near the wellbore, and control can only be regained by installing or replacing equipment to shut in or kill the well or by drilling a relief well.

**Lost circulation**

Lost circulation is the loss of drilling fluids from the wellbore into permeable formations penetrated by the well.

## Casing and Cementing

**Tapered casing**

Tapered casing is more than one size of casing run in on the same casing string entirely cemented in one operation. The lower section of casing is recorded as a liner and is therefore required to have a liner top.

**Slotted liner run on bottom of cemented section of casing**

If the liner and casing have the same outside diameter, report one casing entry to the shoe of the liner. Report two cementing entries as slotted uncemented liner (code 91) with the actual cementing details.

If the liner and casing have different outside diameters, record a regular casing entry with the shoe set equal to the stage tool depth. Report the cement details. For the slotted uncemented portion, report a second casing entry with the shoe set equal to the depth of the slotted liner shoe and a liner top depth equal to

| | |
|---|---|
| | the top of the liner. Report the cement entry as slotted uncemented liner (code 91). |
| **Slotted liner run on bottom of cemented section of casing** | When a slotted liner is run in a horizontal well, in addition to reporting it in the casing record, you must also report it in the completion record showing the interval of the well covered by the slotted liner (from the shoe set depth of the previous casing to the shoe set depth of the liner).<br><br>If the slotted liner is not run all the way to total depth, the open hole interval must also be recorded from the shoe set depth of the liner to total depth. |
| **Open hole** | If after running casing, the casing shoe is drilled out, leaving an open hole, the open hole interval must be reported in the completion record, showing the open hole from the shoe set depth of the last casing run to total depth of the well. |

**Plug Backs/Abandonment Purpose Code**

| | |
|---|---|
| **Abandon** | A cement plug or series of cement plugs is run in the hole for the purpose of abandonment. |
| **Plug back and case** | A cement plug is run before or after a casing has been set in the hole. |
| **Plug back and whipstock** | A cement plug is run and is used to achieve the angle for directional or horizontal drilling from the original wellbore. |
| **Plug back and sidetrack (fish)** | A portion of the drill string or tools (fish) is stuck downhole and cannot be recovered. A cement plug is run over the fish, and a new hole is drilled around the fish to resume drilling operations. |
| **Plug back and straighten** | Drilling operations have deviated off target from the intended direction. A cement plug is run in a portion of the drilled hole, and drilling operations continue at the correct deviation. |
| **Lost circulation plug (not drilled out)** | A cement plug is run over the lost circulation interval to stop the formation from feeding from the hole. |

**Operation Type Codes**

| | |
|---|---|
| **Perforation** | Holes are placed through the casing and cement and into the formation using a perforating gun, or the casing and cement are cut using sand-laden fluids to expose a formation. |
| **Slotted liner** | A method of completion common for a horizontal well. |

| | |
|---|---|
| **Open hole/barefoot completion** | An open hole/barefoot completion allows reservoir fluids to flow unrestricted (no casing) into the wellbore. This is a common completion for a horizontal well. |
| **Acid treatment** | A volume of acid is circulated down the wellbore over or into a completed interval. |
| **Chemical squeeze** | Chemicals are injected into the formation to clean out deposits that have collected in the formation. |
| **Alcohol squeeze** | Alcohol is injected into the formation to clean out deposits that have collected in the formation. |
| **Fracture** | Rocks are split by pumping fluid into the well to apply pressure against the formation. |
| **Cement plug** | A volume of cement is placed in the casing to abandon a well or isolate a completion interval. |
| **Cement squeeze** | Cement is squeezed into a completed interval to seal it off. |
| **Packing device capped with cement** | The setting of a mechanical device (e.g., bridge plug, cement retainer) and capping with a volume of cement. |
| **Casing patch** | A mechanical apparatus used to seal leaking casing or perforations. |
| **Packing device, no cement** | A packing device (e.g., whipstock packer, bridge plug) is set with no cement on top to abandon a zone. EUB approval may be required prior to performing this operation. |
| **Remedial Casing Cementing** | Operation to place cement behind the casing by perforating the casing over a desired depth and circulating cement down the casing, through the perforations, and up the annulus. |

## Appendix 2 Unique Well Identifier

**General Description**

The unique well identifier (UWI) is the standard well identification that was developed for the petroleum industry by the Geoscience Data Committee of the Canadian Petroleum Association (CPA) and has been adopted by the oil and gas regulatory agencies of the four western provinces and federal areas. It consists of 16 characters, which make up four basic components:

1) legal survey location
2) survey system code
3) location exception code
4) event sequence code

Together these define the approximate geographical location of the bottom of a drill hole and a specific drilling or producing event at the drill hole.

The unique well identifier, although based on the legal survey position of a well, is primarily for identification rather than location. The location component describes the bottomhole location of the well, not the surface position of the well.

**Dominion Land Survey System**

The legal survey location component for Alberta is the Dominion Land Survey system (DLS), which is used in Alberta, Saskatchewan, Manitoba, and a portion of British Columbia.

**Unique Well Identifier Format**

The correct unique well identifier format is the 16-character format shown below:

| SS | LE | | LSD | | SC | | TWP | | | RG | | W | M | P | ES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |

The DLS system is designated in the unique well identifier format by a 1 in the first position.

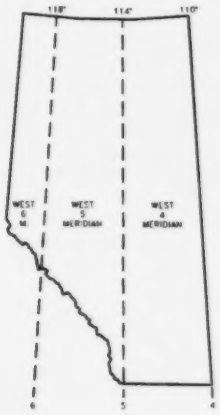
| SS | LE | | LSD | | SC | | TWP | | | RG | | W | M | P | ES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | | | | | | |

Acceptable value(s): 1 for Alberta
Abbreviation: S or SS

**Meridian**

For the purposes of survey locations, the province of Alberta is subdivided into three areas defined by the **meridians** of longitude.

For unique well identifier purposes, these are referred to as west (W) of the fourth, fifth, and sixth meridians.



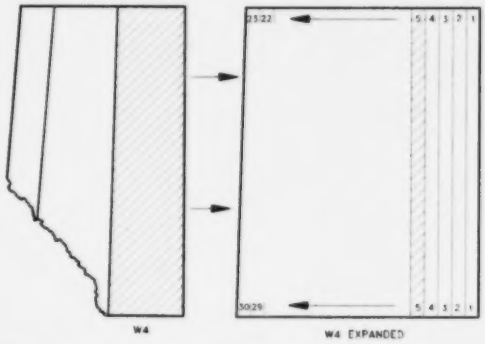
Example:

| SS | LE | | LSD | | SC | | TWP | | | RG | | W | M | P | ES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | | | W | 4 | | |

Acceptable values: W4, W5, W6

**Range**

Each area (i.e., West 4, West 5, and West 6) subdivides into ranges, as shown below:




Example:

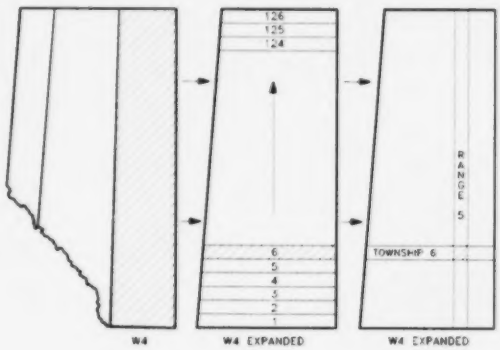
| SS | LE | | LSD | | SC | | TWP | | | RG | | W | M | P | ES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | 0 | 5 | W | 4 | | |

Acceptable values: Ranges are numbered from 1 to 30. Note that West 6 meridian contains a maximum of 14 ranges only.

Approximate size: A range measures 9.7 km (6 miles) east to west.

**Township**

Each area west of a meridian subdivides north-south into townships, as shown below:



Example:

| SS | LE | | LSD | | SC | | TWP | | | RG | | W | M | P | ES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | 0 | 0 | 6 | 0 | 5 | W | 4 | | |

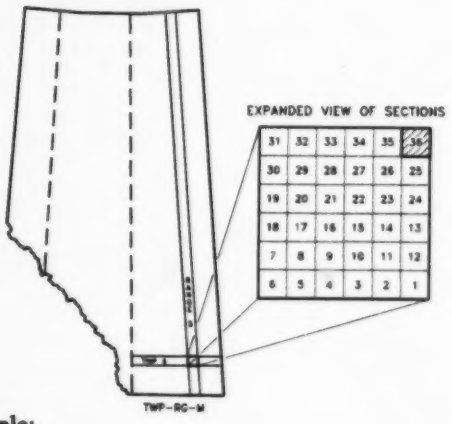
Acceptable values: Townships are numbered 001-126.

Approximate size: A township measures 9.7 km (6 miles) north to south.

Abbreviation: TWP

**Section**

After township, range, and meridian have been located for a drill hole, the next portion of the DLS is the section.




Example:

| SS | LE | | LSD | | SC | | TWP | | | RG | | W | M | P | ES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 3 | 6 | 0 | 0 | 6 | 0 | 5 | W | 4 | | |

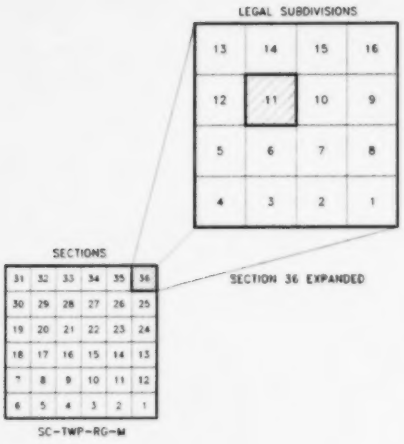
Acceptable values: Sections are numbered 1-36.

Approximate size: A section measures 1.609 by 1.609 km (1 mile by 1 mile).

Abbreviations: SEC or SC

**Legal Subdivision**

The smallest division in the DLS system is the legal subdivision.




Example:

| SS | LE | | LSD | | SC | | TWP | | | RG | | W | M | P | ES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 1 | 1 | 3 | 6 | 0 | 0 | 6 | 0 | 5 | W | 4 | | |

Acceptable values: Legal subdivisions are numbered from 1 to 16.

Approximate size: A legal subdivision measures 402 by 402 m (1320 by 1320 feet).

Abbreviation: LS or LSD

**Location Exception Code**

The location exception code is used to identify cases where there is more than one drill hole on the smallest land area described by the DLS system. That is, the location exception code is used to describe more than one drill hole in a legal subdivision.

Example:

| SS | LE | | LSD | | SC | | TWP | | | RG | | W | M | P | ES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 2 | 1 | 1 | 3 | 6 | 0 | 0 | 6 | 0 | 5 | W | 4 | | |

This example illustrates the second hole drilled in LSD 11-36-006-05W4.

Abbreviation: LE

In addition, the location exception is generally used to describe the sequence in which the drill holes were drilled in the legal subdivision.

**Event Sequence Code**

The event sequence code is a one-character code indicating the chronological sequence of a significant drilling and/or completion operation of a drill hole that yields a separate and unique set of geological or production data.

Example:

| SS | LE | | LSD | | SC | | TWP | | | RG | | W | M | P | ES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 2 | 1 | 1 | 3 | 6 | 0 | 0 | 6 | 0 | 5 | W | 4 | | 2 |

This example illustrates a second "event" in the second drill hole in LSD 02/11-36-006-05W4/2.

Acceptable values: 0-9

Exceptions: 1 is not acceptable.

Abbreviation: ES

**Padding Character**

This is an unused character in the unique well identifier format and is left blank. This position is required in other survey systems.

| SS | LE | | LSD | | SC | | TWP | | | RG | | W | M | P | ES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 2 | 1 | 1 | 3 | 6 | 0 | 0 | 6 | 0 | 5 | W | 4 | | 2 |

Abbreviation: P

**Application to Resource Areas**

The following section explains the exact usage of the unique well identifier as it applies to the oil and gas, oil sands, and coal resource areas.

**Oil and Gas Areas**

Examples:

The first well drilled in an LSD is indicated as

| SS | LE | | LSD | | SC | | TWP | | | RG | | W | M | P | ES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 0 | | | | | | | | | | | | | |

The second well drilled in an LSD is indicated as

| SS | LE | | LSD | | SC | | TWP | | | RG | | W | M | P | ES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 2 | | | | | | | | | | | | | |

The thirteenth well drilled in an LSD is indicated as

| SS | LE | | LSD | | SC | | TWP | | | RG | | W | M | P | ES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 3 | | | | | | | | | | | | | |

Acceptable values: 00-19

Exceptions: 01 is not used.

**Oil Sands Resource Area**

The oil sands resource area employs the same components of the unique well identifier as the oil and gas identifiers. However, the location exception portion of the unique well identifier has different code designations.

**Oil Sands Location Exemption Codes**

The following location exception designations are used for oil sands evaluation (OV) drill holes.

Example:

| SS | LE | | LSD | | SC | | TWP | | | RG | | W | M | P | ES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | A | | | | | | | | | | | | | |

Acceptable values: AA through HZ, with the sequence AA, AB, AC... AZ, BA, BB, BC... HW, HX, HY, HZ

Exceptions: The use of I or O is not acceptable (e.g., BI, BO, GI, GO, etc., are not acceptable).

The location exception codes for OV wells may not be assigned in the chronological order of drilling. For example, the first OV well drilled in an LSD may have a location exception code other than AA.

**Coal Resource Area**

The Coal Act specifies that coal drill holes are identified by section, township, range, meridian, and coordinates from the section boundaries. For the purpose of consistency throughout the resource areas, coal drill holes are additionally identified by the unique well identifier.

**Coal Location Exception Code**

Coal drill holes employ the unique well identifier in the same manner as oil and gas and oil sands resource areas, but with modifications to the location exception code.

Example:

| SS | LE | | LSD | | SC | | TWP | | | RG | | W | M | P | ES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | A | | | | | | | | | | | | | |

Acceptable values: 1A through 9Z, with the sequence 1A, 1B, 1C... 1Z, 2A, 2B ... 2Z, 9A... 9X, 9Y, 9Z

Exceptions: The use of I or O is not acceptable (e.g., 1I, 1O, 7I, 7O, etc., are not acceptable).

The location exception may or may not be assigned in the chronological order of drilling. For example, the first coal drill hole in an LSD may have a location exception code other than 1A.

**Multiple Resource Occurrences**

Where more than one resource is encountered by a drill hole, each resource is identified by a unique well identifier with the appropriate location exception code.

Examples:

For a drill hole location of

| SS | LE | | LSD | | SC | | TWP | | | RG | | W | M | P | ES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 1 | 0 | 2 | 0 | 0 | 3 | 0 | 1 | 5 | W | 4 | | 0 |

that encounters both gas and coal, the gas resource would be identified as

| SS | LE | | LSD | | SC | | TWP | | | RG | | W | M | P | ES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 3 | 0 | 1 | 5 | W | 4 | | 0 |

and the coal resource would be identified as

| SS | LE | | LSD | | SC | | TWP | | | RG | | W | M | P | ES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | A | 1 | 0 | 2 | 0 | 0 | 3 | 0 | 1 | 5 | W | 4 | | 0 |

Although physically only one drill hole exists, there are two unique well identifiers, each designating the appropriate resource. It is possible to have a single drill hole penetrate three different resources. The resulting identification or view of the drill hole from each resource perspective is shown in the following example:

For a drill hole location of

| SS | LE | | LSD | | SC | | TWP | | | RG | | W | M | P | ES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 1 | 0 | 2 | 0 | 0 | 3 | 0 | 1 | 5 | W | 4 | | 0 |

the oil and gas identification (first well in LSD) would be identified as

| SS | LE | | LSD | | SC | | TWP | | | RG | | W | M | P | ES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 3 | 0 | 1 | 5 | W | 4 | | 0 |

the oil sands identification (first oil sands occurrence in LSD) would be

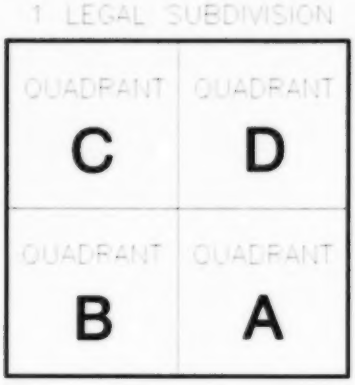
| SS | LE | | LSD | | SC | | TWP | | | RG | | W | M | P | ES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | A | A | 1 | 0 | 2 | 0 | 0 | 3 | 0 | 1 | 5 | W | 4 | | 0 |

the coal identification (first coal occurrence in LSD) would be

| SS | LE | | LSD | | SC | | TWP | | | RG | | W | M | P | ES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | A | 1 | 0 | 2 | 0 | 0 | 3 | 0 | 1 | 5 | W | 4 | | 0 |

**Quadrants**

When the drilling spacing unit (DSU) is less than 16 hectares (40 acres) or one LSD, the following designation is used:




Example:

| SS | LE | | LSD | | SC | | TWP | | | RG | | W | M | P | ES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | | | | | | | | | | | | | | |

Acceptable values: A, B, C, D

Approximate size: One quadrant measures 201 by 201 m.

The second digit of the location exception code indicates the chronological sequence in which the wells were drilled in the quadrant.

Example:

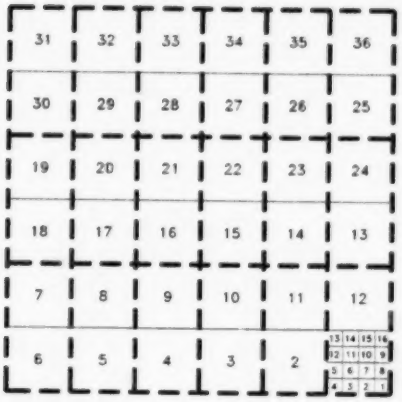
| SS | LE | | LSD | | SC | | TWP | | | RG | | W | M | P | ES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | 0 | | | | | | | | | | | | | |

This example indicates the first well drilled in Quadrant A.

Acceptable values: 0-9

Exceptions: 1 is not acceptable.

**Road Allowances**




The above darkened lines indicate road allowances. A well drilled in a road allowance is referenced either south (S) or west (W) of the legal subdivision indicated in the identifier.

Example:

| SS | LE | | LSD | | SC | | TWP | | | RG | | W | M | P | ES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | S | | | | | | | | | | | | | | |

Acceptable values: S or W

Approximate size: A road allowance is 20 m wide.

The second digit of the location exception code indicates the logical sequence in which the wells were drilled in the road allowance.

Example:

| SS | LE | | LSD | | SC | | TWP | | | RG | | W | M | P | ES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | S | 0 | | | | | | | | | | | | | |

This example indicates the first well drilled in the road allowance.

Acceptable values: 0-9

Exceptions: 1 is not acceptable.

**Freshwater Sources**

The location exception portion of the unique well identifier is also used to designate locations from which fresh water is drawn. Freshwater sources are

- wells (F)
- lakes (L)
- rivers (R)

Example:

| SS | LE | | LSD | | SC | | TWP | | | RG | | W | M | P | ES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | F | | | | | | | | | | | | | | |

Acceptable values: F, L, R

The second digit of the location exception code indicates the chronological sequence in which the freshwater source locations were activated.

Example:

| SS | LE | | LSD | | SC | | TWP | | | RG | | W | M | P | ES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | F | 1 | | | | | | | | | | | | | |

This example indicates the first freshwater source well (or location).

Acceptable values: 1-9

Exceptions: 0 is not acceptable.

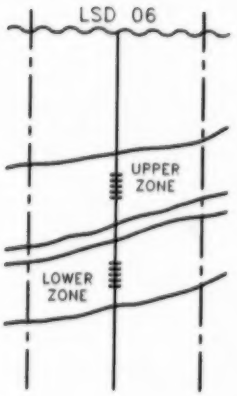
**Identifier Usage Examples of Unique Well**

**1. Dual completion**

Initial completion retains the originally assigned identifier with the zero event sequence, e.g., 00/06-12-045-12W4/0.

Subsequent completions are assigned the next event sequence, e.g., 00/06-12-045-12W4/2.

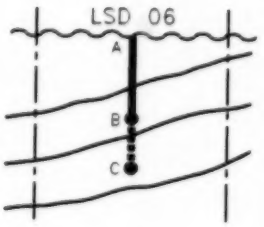
Event sequence codes are assigned chronologically. However, if both zones are completed in the same operation, the lower zone is deemed to be completed first.




**2. Deepening of an existing well to a new geological horizon**

Existing well A-B has identifier of 00/06-14-045-12W4/0.

Deepened portion of the well B-C is assigned a new identifier of 00/06-14-045-12W4/2.

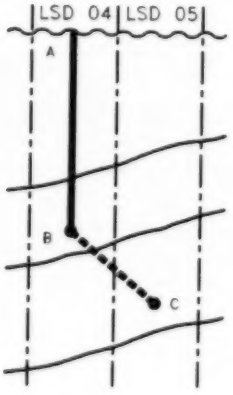



**3. Deepening of an existing well to a new geological horizon by whipstocking**

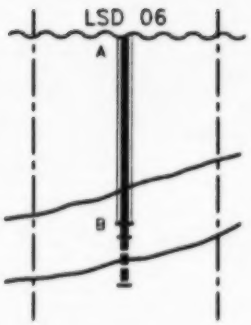
Existing well A-B has an identifier of 00/04-14-045-12W4/0.

When the deepened portion is projected to bottom in LSD 5 or it inadvertently bottoms in LSD 5, the new hole from A to C is assigned a new identifier of 00/05-14-045-12W4/2.

It is given an event sequence of 2 to indicate that the new borehole originated from an existing well.



**4. Re-entry of an existing abandoned well**

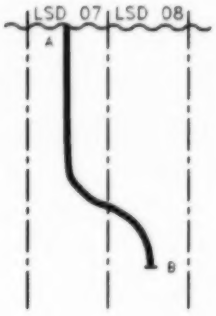



This case applies when the abandonment plugs are drilled out.

Existing abandoned well A-B has an identifier of 00/06-17-045-12W4/0.

Re-entry data are assigned a new identifier of 00/06-17-045-12W4/2.

**5. Directionally drilled well projected to bottom in a specified legal location**

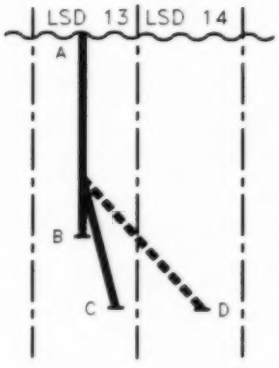



At the time of licensing the well is assigned its projected location.

When projected to LSD 08, it is assigned an identifier of 00/08-18-045-12W4/0.

When projected to LSD 07 but inadvertently bottomed in LSD 08, the identifier at time of licensing would be 00/07-18-045-12W4/0 and it would subsequently be changed to 00/08-18-045-12W4/0.

**6. Whipstocked hole from an existing well**

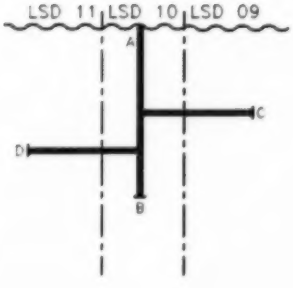



Existing well A-B has an identifier of 00/13-20-045-12W4/0.

When the whipstocked hole is projected to bottom in LSD 13, it is assigned an identifier of 00/13-20-045-12-W4/2, which remains unchanged if it actually bottoms in LSD 13 (e.g., hole A-C).

When the whipstocked hole is projected to bottom in LSD 13 but inadvertently bottoms in LSD 14 (hole A-D), it is assigned a new identifier of 00/14-20-045-12W4/3. It is given an event sequence of 3 to indicate that the new borehole originated from an existing well.

**7. Horizontal Wells**




Existing well A-B has an identifier of 00/10-21-045-12W4/0.

Borehole A-C would have an identifier of 00/09-21-045-12W4/2.

Borehole A-D would have an identifier of 00/11-21-045-12W4/3.

Each new borehole (A-C and A-D) is given a sequential event to indicate that it originated from an existing well.

## Appendix 3 Minimum Data Submission Requirements for Daily Record of Operations

| | |
|---|---|
| **Well Data** | Well name, location, contractor, rig number, kelly bushing elevation (KB), and blowout preventer (BOP) elevations. |
| **Tests** | Details of all BOP and choke manifold pressure tests, test duration, and initial and final test pressures. Details of daily mechanical tests (including equipment tested).<br><br>Air shut-off tests: details of all predrill-out and weekly shutdown of mechanical tests.<br><br>BOP drills: details of all predrill-out and weekly drills, including mode of operation (drilling, tripping, or out of the hole), equipment used, and training requirements. |
| **Drilling Information** | Spud date, bit size, depth of hole at beginning or end of each tour, deviation surveys, whipstock-setting depths, directional surveys, fishing details, total depth, rig release date. |
| **Drilling Occurrences** | Lost circulation: depth and interval, density and volume of fluid lost, amount and types of materials used.<br><br>Gas kick: depths, shut-in and circulating pressures, influx volume, control procedures.<br><br>Water flow: depth, pressures, volume control procedures. |
| **Formation Tests** | Drillstem test: test number, interval, valve open time, gas, oil, or water to surface times and flow rates, recovered volumes.<br><br>Wireline tests: test number, depth, duration, recovery.<br><br>Flow tests: depths, recoveries, fluid levels, flow rates.<br><br>Swab tests: depths, recoveries, fluid levels. |
| **Cores** | Core number, interval, size, recovery.<br><br>Side-wall core; individual depths. |
| **Logs** | Types of logs run and corresponding intervals. |
| **Abandonment or Plug Back** | Plug number, interval, plug setting, amount of cement and additives, slurry weights, time and depth the plug is felt, drilled-out depth.<br><br>Bridge plugs: setting depth, pressure test details, amount of cement in cap.<br><br>Surface abandonment: details, including cutting of casing, cement cap, or welding on plate. |

| | |
|---|---|
| **Casing and Liners** | Size, setting depth, liner top, weight, grade, collar type, new or used (if mixed string is run, this information is required for each section). |
| **Case Cementing** | Amount and type of cement and additives, slurry weight, slurry volume, returns to surface, cement top (if determined). |
| **Completion** | Packers: type, setting depth.<br><br>Perforations: interval, type, number; if notched, quantities of sand and fluid and treating pressure.<br><br>Acidizing: interval, type, concentration, volume of acid and additives, wash or squeeze, feed rates, and pressures.<br><br>Squeeze jobs: interval, amounts and types of materials squeezed, feed rates, and pressures.<br><br>Fracturing: type, quantity, and size of propping agents, type and volume of carrier, additives, type and quantity of plugging agents, feed rates, and pressures. |